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III.—ON THE CHARACTER OF INFERRED PARENT LANGUAGES.

1.—The idea of inferentially constructing a parent language on the basis of actually existing cognate languages or dialects seems to have originated with Schleicher. In his *Linguistische Untersuchungen*, vol. II (*Die Sprachen Europa's in systematischer Uebersicht*), published in 1850 at Bonn, he speaks of 'primary languages' (*Primärsprachen*, e. g. pp. 29–30) such as the Latin and the Sanskrit, contrasting them with 'secondary languages' such as the Romance languages and the modern Hindu vernaculars. In some cases, he adds, such primary languages are not extant, but must be constructed from their descendants (secondary languages). These primary languages, in turn, he regards as daughters of one mother, the parent language (*Ursprache*). Two years later, in his *Formenlehre der Kirchenslavischen Sprache* (1852), he expresses himself similarly. A Parent Slavonic is posited there as the common source from which the different Slavonic idioms must be derived and which may be inferred by a comparison of these idioms (p. 27). And by way of illustration he constructs (p. 28) the Parent Slavonic active present participle on the basis of the Church Slavonic, Serbo-Illyrian, Russian, Polish, and Bohemian forms.

What is done here for the Slavonic dialects he considers possible for the Indo-European languages: 'From a comparison of the oldest extant languages of the different Indo-European families, with due regard to the laws of historical grammar, we may form a comparatively clear conception of the Indo-European parent language from which the mothers of the different families [= Schleicher's primary languages] developed in a manner analogous to that in which the Romance languages were evolved from the Latin' (p. 4, l. c.). *All* the derived languages, he maintains, must form the basis on which the Indo-European parent language is to be constructed, since *all* of them have originally flowed alike from this common source. But the varying degree of faithfulness with which the different languages have preserved old sounds and forms makes, according to Schleicher, those languages of

especial importance which have remained nearest to the original home of the Indo-European parent people.

It was nine years later, viz. in 1861, when this plan of reconstruction was actually carried out. As the subtitle of the compendium '*Kurzer Abriss einer Lautlehre der Indogermanischen Ursprache, des Altindischen, Alteranischen, Altgriechischen, Altitalischen, Altkeltischen, Altslawischen, Litauischen und Altdeutschen*' shows, 'the attempt has here been made to place the inferred Indo-European parent language alongside of its really existing descendants' (², p. 8, note). Summing up the results of comparative grammar of the preceding half-century, the compendium closes the first period. It opens the second period in that it endeavors to trace the facts of the various Indo-European idioms back into prehistoric times, in order to reconstruct from the data of the individual languages the parent language from which all of them are descended.¹ For a great deal of the work of the last forty years has been done along these very lines, and in the eyes of many the ultimate reconstruction of the Indo-European parent language has been the ideal of all special comparative investigation, the more so as it seemed the key to open to us the mysteries of a prehistoric civilization. 'I had originally intended,' says Fick in the preface to the fourth edition of his *Comparative Dictionary* (1890), 'a work on a much larger scale. I had in view to add to the lexicon of the Indo-European parent language also its grammar, and, furthermore, a sketch of the civilization of the parent people. But the time for doing this has not yet come. There is need of more works like J. Schmidt's *Pluralbildungen*, before we may dare approach the reconstruction of the grammar of the parent language . . .'

To be sure, the parent language as now reconstructed looks very different from that inferred by Schleicher.

2.—We have ceased to look with Schleicher for absolute simplicity in the parent language. To him the morphological elements of a word were then still intact, for successive vowels and consonants had not yet begun to react on each other. The diversity and manifoldness in sounds and inflection of the various Indo-European idioms as they appear in historical times are to Schleicher the results of decay and degeneration. This theory was gradually abandoned for two reasons.

¹ Cf. Bechtel, *Hauptprobleme*, Einleit., p. 1.

First, because such an *a priori* postulate of simplicity could only reasonably be made for the very first period of language-production. But this period is absolutely beyond our reach and separated by a vast gulf from the periods amenable to reconstruction.

Second, because this principle conflicts with Schleicher's second methodological principle, that the parent form must be of such a character that all really existing forms of the Indo-European languages may be derived from it by regular laws. The more consistently this principle has been applied, the more has simplicity given way to complexity, and in consequence of it the parent language as now reconstructed is, in some respects, richer than any of its descendants.

3.—An inquiry into the nature and character of the parent language, thus reconstructed, will naturally fall into two parts.

First, we must examine the various limitations to which this method of reconstruction is necessarily subject.

Second, we must determine how these limitations affect the object reconstructed according to this comparative method; whether, namely, they imply quantitative imperfections only, or whether their influence is so vital as to touch upon the very essence and quality of the reconstructed object.

4.—Philology, like all historical sciences, requires an object clearly defined in time and in space. It is here that we find our comparative method most seriously defective.

The chief characteristic of all modern grammatical investigations is that they are historical, i. e. that they do not treat a language as if it were fixed and immovable, but as a growth whose changing phases should be outlined in a connected series of successive periods. The very attempt to reconstruct a parent language is due to this historical treatment, for its aim is simply to extend the continuity of development beyond historical times.

5.—But the question, To which period of the prehistoric Indo-European does a given reconstructed form belong? is, unfortunately, unanswerable. 'When we speak of Indo-European forms,' says Brugmann (Compendium, Engl. tr., I, p. 13, §12), 'we *generally* mean those forms which were in use toward the close of the primitive period.¹ But we *also often* mean such forms as

¹ The vagueness of this limit is pointed out below, §10.

belonged to an earlier period of this stage and which had already undergone a change toward its termination. Forms put down by us as primitive Indo-European . . . are therefore *not* to be indiscriminately regarded as *belonging to the same period.*' The result of this uncertainty becomes glaringly apparent if we imagine an English grammar or dictionary constructed according to a method by which Anglo-Saxon, Chaucerian, and nineteenth-century forms could not be separated but would all stand on the same plane.

6.—It is only another aspect of the same fundamental difficulty that we are unable to fix accurately the time and extent of operation of inferred phonetic laws. Ignorant of the exact time during which they were operative and of the relative chronology of different laws, it is inevitable that we must be constantly committing the gravest anachronisms in our reconstruction of Indo-European forms, combining in the same form laws which operated at entirely different periods. As early as 1869 Johannes Schmidt called attention to this danger. In the preface (p. ix) to the second edition of Schleicher's *Die deutsche Sprache* (revised by him after Schleicher's death) he says: 'The forms of the German parent speech I have left as Schleicher wrote them . . . It was of no importance to reconstruct here the words in all their parts just as they actually existed at some one definite prehistoric point of time, but simply to restore the old endings for the better understanding of their later forms. Whether, for instance, the gen. plur. *dagām* ever existed in this form, or whether, at the time when the gen. plur. terminated in *-ām*, the shifting of mutes had not yet taken place and the form was, consequently, *daghām*, while after the shifting of mutes the real form was *dagā*, is immaterial for the purposes of this book. In this respect all forms of the German parent speech are merely hypothetical.'

If we were to adopt this method in the reconstruction of an English word we should run the risk of joining to a Chaucerian stem an Anglo-Saxon prefix and a nineteenth-century suffix, begetting a monster not unlike the Chimaera, *πρόσθε λέων, ὀπίθεν δὲ δράκων, μέσση δὲ χίμαιρα*.

7.—In a very suggestive article on 'Relative Sprachchronologie' (*Indogermanische Forschungen*, IV (1894)), Otto Bremer, after alluding (p. 8) to the chronological difficulties just treated, which

lead us to assign two words, of which one is perhaps much older than the other, to the same preliterate period, or cause a similar error by uniting in the same word phonetic changes belonging to entirely different periods, offers a most excellent illustration of a third obstacle in the way of reconstruction of parental forms, viz. that the antiquity of a sound-change cannot be measured by the frequency of its occurrence in the individual languages.¹ This theory stands and falls with the linear theory of the disintegration of the Indo-European primitive stock, which pictures it in the form of a genealogical tree. It becomes *theoretically* untenable as soon as the latter hypothesis is discarded. And Bremer has shown it *practically* wrong in the concrete example of a change confined to the Anglo-Frisian for which, on direct evidence, greater antiquity may be claimed than for certain changes which are common to all Germanic dialects.

8.—And finally we must base our reconstructions on individual forms which have behind them a most unequal stretch of independent development. A Vedic form is separated from an Albanian form by at least 3000 years. And the problem, as was early enough recognized and admitted, is in reality not the reconstruction of the parent on the basis of descendants of the first degree, but on the basis of an aggregate of descendants of very different degrees, descendants which have undergone an independent development of very unequal duration, during which unknown external forces have had an opportunity of variously affecting them.

9.—We have seen above how intimately linked questions of chronology are with the geographical notions held with reference to the spread of the Indo-Europeans over the territory which they hold in historical times.

To Schleicher the Indo-European parent people was a nation limited in numbers, inhabiting a comparatively small area somewhere in Asia, whence issued forth, from time to time, migratory expeditions which settled down in new homes more or less removed from the old parent stock, and, breaking intercourse with it, started on a line of independent development. Though remnants of this theory yet linger on, as is shown by expressions like 'the parting of the peoples' or 'the end of the primitive

¹ Cf. Paul, *Principien*², p. 41 (§46 of the Engl. tr.).

period' and the like, it is safe to say that it is at present generally discarded and has been superseded by the theory of gradual expansion, which may be regarded as a transfer of the leading idea of Schuchardt-Schmidt's linguistic wave-theory to the ethnological problem of the spread of the Indo-Europeans. Now, if migration, as conceived by Schleicher, played at best but a very small part in locating the Indo-Europeans in their present quarters, and we substitute for it a gradual expansion progressing in (roughly speaking) concentric circles, belt after belt being added as time passed and numbers increased, the whole aspect is considerably changed. Instead of assuming a series of sudden interruptions of intercourse between members of the outer belts and the central stock, we shall rather have to admit a constant communication of members of inner and outer belts, varying, of course, in the degree of intensity, which would depend on a variety of causes which need not be treated here. The effect of this continual interdependence, which thus takes the place of Schleicher's independence, is a slow dissemination over an ever-increasing area of whatever developments in language or institutions or art or manufacture may arise in any one locality.

10.—But as soon as we substitute this theory of gradual expansion for that of disintegration, we can no longer contrast the parent stock with the individual members, as Schleicher does. Instead of a parent stock which is broken up into a number of smaller units which, stopping their intercourse with the main body, start on a new and independent course of development, we must posit a nucleus which develops proportionately to the outer belts, which continually reacts on them, as they react on it, which, in a word, is ever changing.

Leaving out of consideration, for the moment, all possible contact with foreign tribes (though the influence from that source was certainly very great), the territory occupied by the Indo-Europeans, even in the course of a wholly normal expansion, must have represented thousands of years before our oldest historical records begin, an aspect so diversified that it would be impossible to regard it as one national unit, much less to assign to it one dialect. But this is the very period for which alone a reconstruction can be attempted. The time for which uniformity might theoretically be postulated lies in so distant a past that it is altogether beyond our reach.

Brugmann very clearly states that he is not 'operating with the idea of one primitive nation and a primitive, homogeneous parent speech,' a fault which E. Meyer had urged against comparative philologists (*Geschichte des Alterthums* (1884), I, pp. 7-8, note) when he says (*Compend.*, Engl. tr., I, p. 2, §3) that 'it is impossible to suppose that a language [like the Indo-European] should have gone through a long course of development and be spoken by a people of any considerable number without a certain amount of dialectic variations, and hence we cannot look upon the speech of the Indo-Europeans, even while they still occupied a comparatively small territory and maintained a fairly close degree of intercourse with one another, as bearing, in any strict sense, a uniform character. Local differences had, no doubt, already arisen . . . We may take it for granted that the differentiation of dialects about the year 2000 B. C. had gone so far that a number of communities existed side by side which could no longer or only with difficulty understand each other.' And Bremer almost verbally coincides with E. Meyer's remark (l. c.): 'Nowhere does a homogeneous parent speech exist, but everywhere we have dialects influencing one another,' when he says (*Indog. Forsch.* IV (1894), p. 10): 'Within every parent language there existed at all times dialectic variations. I do not believe that we shall ever succeed in reconstructing the posited Indo-European parent language in its main features. We shall have to content ourselves with the reconstruction of the dialectically differentiated components.'

11.—After thus summing up the various limitations which are inherent in the method followed in the work of reconstructing the parent language, we are in a position to approach the second question propounded above: Is the result of these limitations merely a greater or smaller number of *quantitative* imperfections in the reconstructed object, or are they of such a character as to affect it *qualitatively*?

12.—It is plain that the term Indo-European parent language is parallel to terms like Greek language, German language and the like.

These latter terms we use, however, in two entirely different senses. For, as sometimes used, the term German language refers to the *literary language* of Germany, and the term Greek

language is not infrequently used to designate the literary Attic dialect. If thus employed, the term *language* simply denotes a certain dialect which, for one reason or another, and often with admixtures from other dialects, has gained a supremacy over its competitors and is accepted as the general means of (chiefly literary) communication. The elevation of a dialect to a literary language, however, is always a very late development. It presupposes a literature and a strong national feeling tending toward centralization. But the farther back we go the weaker becomes this feeling. So little realized, in fact, is the homogeneous character of large aggregates that during the earlier periods very frequently a name for these larger aggregates is wanting. With Meyer (*Gesch. des Alterth.* I, p. 7, §7, note), we must regard the creation of a literary language—like the creation of a nation—as the goal of historical evolution. It is apparent that the term Indo-European parent language cannot be used in this sense.

13.—There remains, then, the second sense in which terms like English language, German language, etc., are used, viz. when we employ these abstractions as classificatory devices, in order to arrange a large mass of more or less similar units. Is the nature of these generic abstractions such as to make reconstruction possible? This question can only be answered on the basis of a minute examination of the method by which they are formed. The result of our reconstruction is forms, and forms are perceptual objects. If a language-form is a perceptual object it permits, theoretically, of reconstruction; if not, reconstruction of a language-form is an impossibility. In the following paragraphs we shall therefore attempt an analysis of the generic terms 'dialect' and 'language' with a view of ultimately determining whether dialect-forms and language-forms are perceptual objects or not.

14.—Like all historical objects, the language of a people presents static and dynamic problems. In the *first* case it is necessary to regard the object as stationary, and our task is to examine the qualities exhibited by the object at a given point of time. Extending such an examination over a number of successive stages, the result of the examination of each stage marks a point through which the object in its development passed. In the *second* case the object is considered as being in continual

motion, and our task now is to determine the forces which govern this motion.¹

For the full understanding of a given object it is essential that it should be investigated by *both* methods. Such knowledge is made up of the results of both descriptive-historical and explanatory-analytical treatment.

15.—But popular concepts are not the result of such a purely scientific investigation. A large part of the elements of which popular concepts consist is, no doubt, of a static or dynamic character. But a naïve observation couples with them elements which cannot be assigned to either class, elements which are in no way inherent in the object itself, but connected with it by *external* ties, viz. temporal or local contiguity. I propose to call these elements 'associative elements.' So elements of the percept 'lamp' may associatively enter into the concept 'light,' or those of 'a court of law' into that of 'justice.'² For practical purposes this associative admixture causes little or no inconvenience because the total picture is of sufficient clearness. When, however, these same terms are used for scientific purposes the heterogeneous character of their composition gives rise to much ambiguity and, consequently, of controversy. In this case it becomes a matter of importance to distinguish between the various elements which make up the concept, especially with a view to remove the dangerous associative elements.

16.—How, then, does the concept of a dialect³ originate, and of what character are the elements composing it?

The concept originally is not the result of scientific investigation, but of naïve observation. The naïve person expects every one to talk like himself. Hence the fact that his neighbor talks like

¹ Quite similarly we may, in mathematics, regard a curve *either* as a system of discrete points *or* as the track of a point moving under the influence of certain forces. And no bridge leads from the system of discrete points to the continuum.

² It is especially where the other elements are weak, indistinct, and insufficient to produce a clear concept, that the latter is supported, as it were, by a frame-work of associative elements.

³ The most important points affecting the scientific study of dialects were brought out in the controversy regarding the boundaries of Romance dialects, which is admirably summarized by A. Horning in *Zt. f. roman. Philol.* (1893), XVIII 160 *c ff.* Cf. also Paul's second chapter, where *im wesentlichen einheitlich* (pp. 35, 37) equals my 'subjectively uniform.'

himself fails to arouse his attention or interest. This fact, indeed, is not noted by him until he is confronted by a group of individuals differing from him in their speech. The *contrast* for the first time makes him realize the *identity* of speech of himself and the members of his group. This speech-identity of his group he conceives of as the dialect of his group.

Dynamic elements, therefore, originally never enter into the make-up of this concept. They are without value for the immediate purpose for which the concept was created; for the forces to which identity and diversity of speech are due have no direct bearing on the contrast between 'like speech' and 'unlike speech.'

Static elements, on the other hand, are largely present. In calling the speech-identity of a group its dialect we have combined in this concept a large number of judgments passed on the quality of the speech of a certain number of individuals, singling out their speech from that of the rest and claiming likeness for it. The term dialect thus expresses a certain relation of the speech of some individuals to that of other individuals. It must vary as this relation varies, and a dialect, D , may be regarded as a function of this relation, $R : D = F(R)$.

But the concept of a dialect is not wholly made up of static elements. Speech is indissolubly linked to the speaking individual. And, consequently, wholly heterogeneous elements associatively enter into our concept which, for want of a better term, might be called 'ethnological.'

After the contrast of speech of two groups A and B had been noted and found expression in the formation of the concepts ' A -dialect' and ' B -dialect,' it became evident that these *dialectal* groups corresponded to certain *political* groups. And the more normal and primitive the conditions, the closer must have been the similarity between these groups, the stronger, therefore, also the associative tie by which they were held together. The inevitable result was a *fusion* in which elements of one concept passed over into the other. Thus the concept of a dialect, which arose from the necessity of marking the *relation* of a certain kind of speech to another kind of speech, by this admixture of ethnological elements departs somewhat from its original connotation and comes to be used not only with reference to a certain *relation* existing between two kinds of speech, but also denoting a given speech as characteristic of a given political group; and thus part of its purely abstract character is lost.

17.—After we have thus determined the character of the elements of which the popular concept of a dialect is composed, we turn to examine somewhat minutely the exact manner of procedure in the formation of this concept.

The knowledge which we obtain concerning speech is either subjective or objective.

The knowledge which is based upon the direct acoustic sense-impressions conveyed to our brain by the speech-sounds I term *subjective*.

Objective knowledge of speech, on the other hand, is based on a direct examination of the stimuli producing our sensations.

Neither one of these two methods can rightly claim a superiority over the other. Both alike are experimental. They differ only in that the objects of investigation differ. In the former case we examine *sensations*, in the latter case *stimuli*. Their results, therefore, can never be said to conflict. For, if the results obtained by one method are not like those obtained by means of the other, the diversity merely shows that sensation and stimulus are two different things.

18.—In the naïve observation which formed the concept of a dialect the objective method played no part. It was formed wholly *subjectively*, i. e. it is based on *sensations* only, not on a knowledge of the *stimuli* which gave rise to these sensations.

Such subjective knowledge is characterized by these qualities:

I. Our sensations are imperfect. For—

(a) They are of moderate sensitiveness. Certain stimuli are not perceived at all. There is an upper and lower limit for audible tones; variations of a stimulus within certain bounds are not discovered; etc.

(b) They are subject to deception, as in the case of visual illusions.

II. They lack uniformity. For their degree of accuracy depends—

(a) On practice, as in judging distances, weights, etc., and

(b) On attention. This is of especial importance where, as in speaking, a complex object (the spoken word) can be observed for a short time only. As it is possible to attend to only *one* thing at a time, a short observation-time will necessarily prevent *all* qualities of the object from being *equally* attended to.

From this it appears that in subjectively forming the concept of a dialect we may *à priori* assume—

(a) That certain stimuli, though present, were disregarded because they were not perceived.

(b) That the ratio of two or more sensations permits no direct inference as to the ratio of the corresponding stimuli.

(c) That the results must vary in direct proportion to both practice and attention of the observer.

19.—By this method the naïve observer classifies the speech of the individuals surrounding him, and, as we saw above, by a *μετάβασις* into the ethnological *γένος*, these individuals themselves. The speech which is like his he groups into one class; the speech which is different from his into a second class. As in all classification, he thus simplifies the comprehension of a large number of individual objects. Like all generic names, the name of a dialect does not stand for any perceptual object, but expresses a peculiar *relation* of a series of perceptual objects. It stands, not for a sense-percept, but for the particular manner in which we have viewed and grouped a number of sense-percepts.

20.—Two ways are open for such classification :

I. We may begin by tracing a certain system of boundary lines within which we include kindred objects. But very frequently such boundary *lines* cannot be drawn, and in their stead we have boundary *zones*. J. Simon and others experimentally showed this to be the case in dialect-boundaries, and many similar instances might be added.

II. But instead of starting from the periphery, we may also select a *center* around which a number of kindred objects are grouped in concentric circles, the radius of these circles being inversely proportional to the degree of similarity with the center.

If we choose for such a center one of the many concrete objects which are to be classified, I propose to call this a *concrete center*. If, on the other hand, we construct the center on the basis of the concrete objects, none of them being absolutely identical with it, I will call this an *ideal center*.

21.—Let us first examine the manner in which such an *ideal center* may be constructed. We must distinguish here between two possibilities :

I. If we classify single qualities expressible in numbers (e. g. weight, distance, etc.), the *ideal center* is equal to the *mean* of these quality-numbers.¹

Around the *mean* thus obtained the *variations* may be grouped.

And such a classification is of especial interest because certain mathematical theories may be directly brought to bear on it. For Quetelet showed in 1846 (*Lettres sur la théorie des probab. appliq. aux sciences mor. et pol.* Lett. XVIII 119) that the different variations grouped around such a mean may be regarded as so many *fallible measurements* of this same mean, and that therefore the Law of the Frequency of Error may be applied to them.² We shall return to this point below (§26).

II. But if we classify not *single qualities*, but *whole objects*, we construct our ideal center in a somewhat different way.

We begin by comparing all objects ($o_1 o_2 \dots o_n$) as to their qualities. It will then appear—

(a) That certain qualities are present in the same degree or manner in all objects (constant qualities).

(b) Certain qualities are present in all objects, but *not* in the same degree or manner (variable qualities).

(c) Certain qualities are present in some objects and absent in others (variable qualities).

Our ideal center, *O*, must then be constructed in such a manner that it will contain *all* qualities enumerated above under (a) and those qualities enumerated under (b) and (c) *in the most characteristic manner or degree*, by which is meant that manner or degree which will permit the variations as they appear in the

¹ Whether this mean should be the arithmetical mean,

$$M = \frac{a_1 + a_2 \dots + a_n}{n},$$

or the geometric mean,

$$M = \sqrt[n]{a_1 a_2 \dots a_n},$$

must depend on the nature of the case. If, e. g., we have a series of weights, the weight-center will be the arithmetical mean. If, on the other hand, we deal with such sensations as come under Weber-Fechner's law (viz. sensation = log. stimulus), the geometric mean must be substituted (cf. Galton, *Proc. Roy. Soc. Lond.* (1879), XXIX 365).

² Cf. on this also Stieda, *Archiv f. Anthropol.* XIV 167; Galton, *Proc. Roy. Soc.* (1879), XXIX 365; McAlister, *ibid.*, p. 367; Galton, *ibid.* (1889), XLV 135, and the applications by Galton (above), Davenport and Bullard, *Proc. Am. Ac. Arts and Sci.* (1897), XXXII, No. 4, and Brewster, *ibid.*, No. 15.

concrete objects to be most easily deduced from it. This deduction in all historical sciences is *genetic*. The qualities falling under (b) and (c) will therefore be given to *O* in such degree and manner as will make it possible to regard them as the sources from which the individual variations *may* have developed. I say advisedly '*may* have developed,' because by such a method of comparison we can never obtain results for which more than a possibility can be claimed. Certainty could only be gained by experimentally watching the actual progress of development. Strictly speaking, we do not *reconstruct* 'parent'-forms, but we *construct* them. Only when we have been able to observe an object during its period of evolution are we able to reconstruct by retracing the course of development. For in this case the course of development is given. In the construction of 'parent'-forms by the comparative method, however, the course of development from the unknown 'parent'-form, *y*, to the present form, *a*, is not experimentally determined; it is not given, but inferred. We deal here with two unknown quantities. And this makes it very problematic that the result of such a construction will be exactly identical with the real prehistoric 'parent'-form. It will be more or less similar to it; but real identity would be a mere matter of chance, obtained rather despite of our method than by means of it. And cogent proof of such identity must always be lacking.¹

A comparison of any one concrete object o_x with the ideal center *O* will then show that o_x varies from *O* *either* in lacking a quality which *O* has, *or* in possessing a quality which *O* lacks, *or* in possessing a quality in a degree or manner differing from that of *O*.

22.—The ideal center constructed in the preceding paragraph has, of course, no perceptual existence. But suppose that after the construction of such an ideal center it should be found that one of the concrete objects to be classified shows no variation from it, that, e. g., $o_v = O$.

In this case it is plain that we might discard *O* altogether and substitute o_v in its place. This concrete object o_v would then appear in a double rôle, viz. *first* as one of the many concrete objects forming the series o_1, o_2, \dots, o_n , and *second* as ideal center or type of this series.

¹ Cf. Wundt, *Logik*, II 47.

And in *this* case the ideal center really does possess perceptual existence, and we distinguished it from the *ideal type* of §21 by calling it *concrete type*.

23.—Whenever, therefore, we have to deal with generic terms or types we must examine in each case whether we have to do with an ideal or a concrete type. This examination will be our next task, and by it I hope to show that a dialect-form differs from a language-form in that the former is a concrete type, while the latter is an ideal one.

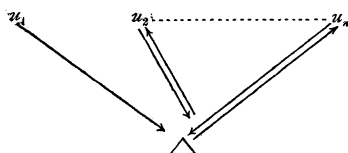
24.—For this purpose it is necessary to investigate those individual objects which, in the manner discussed in §21, II, are fused into the generic concept of a dialect. These elements are, of course, the speech-forms of the various members of the dialectal unit, which may be designated as $U_1 U_2 \dots U_n$. But 'speech-form of a member of a dialectal unit' is itself a generic concept. It is based on the sum of *momentary utterances* ($u, u_2 \dots u_n$) of each member, and our attention must therefore be first directed toward these *momentary utterances*.

25.—The basis for any given momentary utterance (u) of an individual is a certain psycho-physical condition or diathesis Δ .¹ In this respect language does not differ from any other movement. As the expressive movement of a gesture affects our sight, so the expressive movement which gives rise to the spoken word affects our hearing. As a repeated gesture is not the same as the first original gesture, so the repeated utterance is not the same as the first original utterance. Neither the gesture nor utterance has a latent existence during the interval; but the original gesture or utterance on the one hand, and the repeated gesture or utterance on the other hand, are linked together, not directly, but *indirectly* by the psycho-physical diathesis of which they are respectively the results. This diathesis remains; its results absolutely vanish. Consequently the repeated momentary utterances do not exist independently of each other, but as effects of their respective psycho-physical diathesis; so that as long as this diathesis remains the same, the utterances will remain so also.

¹Paul, I believe, was the first to introduce these psychological and physiological considerations into linguistic literature.

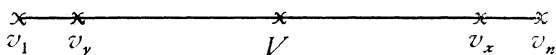
But while we may thus speak of repeated utterances as results of a given diathesis, it is conversely true that this diathesis itself is in turn the product of all the speech movements which have gone before. For the strength of the diathesis depends on practice. The constancy of a diathesis is proportionate to the number of repetitions of the movement, and the probability that a given movement *will be* performed in a given way is the stronger the oftener such movement *has been* so performed.

The first utterance, u_1 , creates a weak diathesis, Δ , on account of which a second utterance, u_2 , will be similar to u_1 ; but, like every subsequent utterance, u_2 will react on Δ and strengthen it. In the adult, therefore, the diathesis, under normal conditions, must be constant and the utterances belonging to it alike.



(Because Δ is of increasing stability, $u_1 = u_2 = \dots u_n$.)

26.—It must be borne in mind that in these observations likeness and unlikeness are determined by purely *subjective* methods. It is not denied that variations may exist and could be discovered by an *objective* examination. All that is claimed is, that if such variations exist they are not perceived as such, *partly* because our senses are not keen enough, *partly* because our attention is not directed to them, *partly* because we compare sensations which do not follow each other in quick succession, but the memory of one sensation is separated from the next similar sensation by a longer or shorter interval, and *partly* for the following reason: Suppose that we have n variations ($v_1 v_2 \dots v_n$) grouped around the type or mean V . Suppose, further, that of these n variations a few lying close to v_1 and v_n (i. e. close to either extreme) are sensibly perceptible; but that those variations lying between v_x



and v_y are not perceptibly different from the type V . The Law of the Frequency of Error teaches, then, that of all n variations the greatest number is bunched closely around V . That is, by far the greater percentage of these n variations must fall between

v_y and v_x , and is therefore sensibly perceived as *equal* to V . Consequently the effect of n variations on the diathesis is not alike. For a large number of these n variations, being perceived as V , strengthens the diathesis, and the number of variations whose difference from V is perceived is in many cases far too weak to act as a disturbing element.

27.—We have seen in §25 that repeated momentary utterances of the same individual are subjectively perceived as alike. If we now form the type U of the whole series of these momentary utterances ($u_1 \dots u_n$), we may, under these conditions, take any u as such a type, and we thus obtain a concrete type:

$$U = u_1 = u_2 = \dots u_n.$$

We may, in other words, take a given momentary utterance of an individual, say u_x , as representative of his average utterance U , because there is an overwhelming probability that the diathesis which gave rise to u_x , and itself was the product of the whole series u_1 to u_x , will produce an u_y and u_z which will be, subjectively, like u_x .

28.—Having thus determined of what character the average utterance of an individual is, we must now compare the average utterances $U_1 U_2 \dots U_n$ of the various members of a dialectal unit, on which, as we saw above, our concept of a dialect is founded.

Now, at the time when the concept of a dialect was first formed they must have been subjectively alike, for this very likeness was the cause for combining them into a class. And if all U 's were alike, their bases, viz. the respective diatheses ($\Delta_1 \Delta_2 \dots \Delta_n$) of the various members of the dialectal group, must have been very similar.

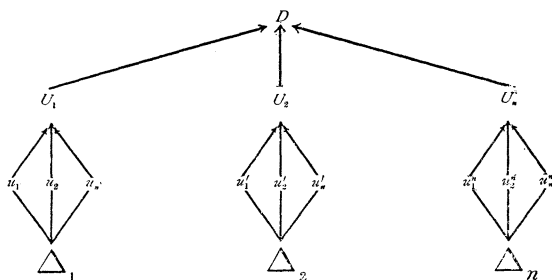
Again, in the case of normal accessions to the dialectal group, viz. by birth, the diathesis of each child was formed by the sum-total of its utterances. And these utterances being, consciously and unconsciously, fashioned after the utterances of its surroundings, would naturally produce in each child a diathesis similar to the diatheses around it.

But suppose that, for reasons which need not be discussed here, new members of a dialectal group should perceptibly differ from the rest. In this case we may plainly see how the admixture

of the heterogeneous ethnological elements (cf. end of §16) will tend to vitiate the very connotation which the concept originally possessed. For we have seen that it was devised to denote a *likeness*, to unite in one class the speech of individuals talking *alike*. To group together a number of individuals in a dialectal group when their speech *differs* is plainly a contradiction in terms. And such grouping does, in fact, not rest on the basis on which the original concept of the dialect was formed, but on an entirely different, heterogeneous basis, viz. *sameness of origin or nationality*. The introduction of this double standard is the source of vagueness and ambiguity, to which reference was made in §16. And for scientific purposes it is certainly essential to remove from the concept of a dialect these heterogeneous, ethnological elements and confine it most strictly to its original sense. Suppose, then, that new members added to the *political group* which, up to that time, had continued to be identical with the *dialectal group*, do perceptibly differ in speech from the rest. It will simply mean that this identity of political group and dialectal group has ceased, and that we now have *two* (or more) *dialectal groups* within the *same political group*.

From these observations it will be apparent that from the very definition of a dialectal group we must assume all U 's of its members to be subjectively alike, from which a corresponding similarity of the respective diatheses ($\Delta_1 \dots \Delta_n$) may be inferred.

The diagram below may serve to represent the relations to the dialect D of the diatheses $\Delta_1 \Delta_2 \Delta_n$ of the various members of a dialectal unit; of the average speech of each member, $U_1 U_2 U_n$; and of the momentary utterances of three such members, viz. $u_1 u_2 u_n$ and $u'_1 u'_2 u'_n$ and $u''_1 u''_2 u''_n$:



Now, if

$$\Delta_1 = \Delta_2 = \Delta_n,$$

then

$$u_1 = u_2 = u_n = u'_1 = u'_2 = u'_n = u''_1 = u''_2 = u''_n;$$

also $U_1 = U_2 = U_n;$

also $U_1 = U_2 = U_n = D.$

And because $U_1 = u_1$, therefore D also $= u_1$.

Or, in other words, any momentary utterance (u) of any member of a dialectal unit may be taken as a type of the *dialectal* utterance. And because any u is a concrete, perceptual entity, all *dialectal utterances are concrete, perceptual entities*.

29.—We may therefore now define thus:—A dialect is the sum of all dialectal utterances. A dialectal utterance is the type of the average (typical) utterances of the members of a dialectal unit. This average utterance is subjectively equal to any one momentary utterance. The type referred to is therefore concrete, and any one momentary utterance of a member of a dialectal group may be taken as representing a dialectal utterance. A dialectal unit is constituted by the speech of all those persons in whose utterances variations are not sensibly perceived or attended to. A dialectal unit, especially at first, may coincide with an ethnological unit, but such coincidences grow rarer as development continues.

30.—There finally remains to be examined the term 'perceptible variation' which has been used throughout, and which we have found to be the one criterion according to which a dialectal group must be determined. The more exactly we can, therefore, draw the line between those variations which *are* subjectively perceived and those which are *not* so perceived, the more sharply shall we be able to distinguish what lies *within* a dialectal group from that which lies *without*.

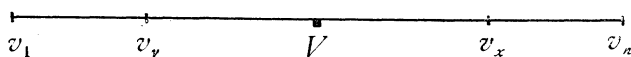
There appears to be but one method of ascertaining whether two utterances are subjectively felt to agree or to differ, and that is to take the testimony of the persons whose sensations form the subject of our inquiry. There is indeed no other way of determining a dialectal group than to take the testimony of the men who are to compose it. For the very reason that the concept of a dialect is formed wholly on a *subjective* basis, all *objective* tests are barred out.

The question whether the inhabitants of two villages, A and B , belong to the same dialectal group can only be answered on the testimony of the villagers as to whether they believe they

speak alike. They are the court of last resort, from which there is no appeal. And occasionally a nickname or a jest will be *prima facie* evidence of the fact that the villagers of *A* clearly feel the difference of their speech from that of *B*.

But he who is unwilling to operate with so uncertain and variable a quantity as a dialect thus appears to be, will be forced to discard this subjective attempt at classification and substitute for it some new *objective* arrangement.

31.—In §26 we grouped *n objective* variations around a center *V* and assumed that the variations lying between v_y and v_x were *not* sensibly perceptible, while those which lie between v_1 and v_y and between v_x and v_n were sensibly perceptible:



And we have seen in the preceding paragraph how the two points, v_x and v_n , can be experimentally fixed. Whatever lies between them is intra-dialectal; what lies outside is extra-dialectal. These extra-dialectal variations (between v_1 and v_y and between v_x and v_n) are *alike* in that they are always sensibly perceived; they *differ* in the degree in which they affect the ease and clearness with which a given word may be *understood*. For, as conveyance of ideas is the chief aim of language, everything which stands in the way of an utterance being understood is of the greatest moment. But it is plain that the nearer the center a perceptible variation lies, the more easily will the utterance containing it be understood; the farther away from the center it lies, the more will it interfere with the understanding of the utterance, until it absolutely prevents the utterance from being understood.

32.—If we now continue our classification of speech along the same lines which led to the formation of the concept of a dialect, we may proceed to unite two or more dialects into a dialect-family; two or more dialect-families into a language; and two or more languages into a language-family. But whereas a dialect-form, as we have seen (§28, end), is a concrete type and hence a perceptual entity, the speech-forms of the types enumerated here are ideal types and have no perceptual existence. No one concrete utterance belonging to any of these three classes may, as in the case of a dialect, be taken as concrete type, because in

each such concrete utterance one or more variable elements *perceptibly vary*. The typical utterance is here *similar* to all concrete utterances, but *like* none. Remove the *perceptible variation*,¹ and these classes revert into the dialect whose distinguishing mark is the *imperceptible variation* of its variables. The whole may be illustrated by the following diagram, in which the classes are represented as (logical) functions of a series of constant (Latin letters) and variable (Greek letters) elements. The variable elements whose variations are not subjectively perceived are enclosed in brackets.

SPEECH-FORM OF	CONSTANT ELEMENTS.	VARIABLE ELEMENTS.	
		Variations perceived.	Variations not perceived.
		$\alpha \quad \beta \quad \gamma$	$[\delta] \quad [\epsilon]$
6. A Language-family, $L' = F(q \quad r \quad s \quad t$		$\alpha \quad \beta \quad \gamma$	$[\delta] \quad [\epsilon]$
5. A particular Language, $L = F(q \quad r \quad s \quad t$		$\alpha \quad \beta \quad \gamma$	$[\delta] \quad [\epsilon]$
4. A Dialect-family, $D' = F(q \quad r \quad s \quad t$		$\alpha \quad b \quad \gamma$	$[\delta] \quad [\epsilon]$
3. A Dialect, $D = F(q \quad r \quad s \quad t$		$\alpha \quad b \quad c$	$[\delta] \quad [\epsilon]$
2. Average Utterance of a member of a dialectal unit, $U = F(q \quad r \quad s \quad t$		$\alpha \quad b \quad c$	$[d] \quad [e]$
1. Momentary Utterance of a member of a dia- lectal unit, $u = F(q \quad r \quad s \quad t$		$\alpha \quad b \quad c$	$[d] \quad [e]$

33.—If I have succeeded in showing that an insurmountable bar thus separates language-forms from dialectal forms, that the latter are perceptual objects while the former are imaginary, it follows that from the very nature of the case the perceptual reconstruction of language-forms is impossible. When a given form is said to be German we thereby mean that it is a member of a large mass which, for convenience sake, we have accustomed ourselves to group together on account of certain resemblances exhibited by all members. But while we may thus classify a given form as German or Greek, just as we might classify a given animal as a bird or a fish, it is as impossible to construct, inferentially, a German form or a Greek form as it is to construct a fish or a bird. Or, to be more exact, the result of these constructions in either case will be an ideal type for which only an illogical hypostasis could claim a past reality.

¹ Perceptibility is the *gewisse maass* of Paul (p. 36) which variations must reach in order to result in *dialectspaltung*.

34.—It would be very rash to deny the value of constructive parent forms because perceptual reality cannot be claimed for them. Their distinct value lies, however, as indicated above, in the fact that they are the means by which we classify and arrange a given number of existing forms. The posited Indo-European *gen-* signifies that Latin *gen-*, Avestan *zan-*, Sanskrit *jan-*, etc., belong together. To claim more means losing one's self in a maze of speculative possibilities. So it is, of course, perfectly proper to say that the I.E. possessed the vowels *a, e, o*, if it is borne in mind that, in doing so, we simply maintain that there is sufficient evidence to show that all prehistoric I.E. dialects (which form the bases of the historical I.E. languages) possessed these vowels at stages of their development antedating the historical epochs. This evidence, however, is *not* sufficient to warrant a claim that these three vowels belonged to the *whole* prehistoric period of I.E. speech, or to settle the question as to their *original* independence. It is impossible to prove or to disprove on such evidence any of the points involved in the controversy outlined by Bechtel, Hauptprobleme, p. 63 f.

The sum total of inferred forms does not give us a true picture of any language ever spoken; nay, even the single forms cannot lay claim to being representatives, true in every detail, of words ever in actual use. Yet it is only by reducing the results of our investigations to such *formulae* that they become convenient enough to be easily handled and permit a clear arrangement of the facts of a language. It is a significant fact and a sign of clear logic that Schleicher's great successor, Brugmann, in the *Grundriss*, does not follow his predecessor in placing on the title-page an 'Indo-European parent language' alongside of the historical languages.

The danger increases if, after infusing life into a parent language constructed by our own hands after the defective method examined above, we proceed to erect upon it as a basis a lofty superstructure of mythological or sociological inferences. Investigations of this character, which are beset by enormous difficulties even when carried on under the most favorable conditions, must necessarily see their ends defeated, if based upon material so unfit because designed for entirely different purposes. The method of Usener in his *Götternamen* (1896), and Wernicke (Pauly's *Real-Encyclop.*, 2d ed., vol. II, 'Apollo') is a most

healthy reaction, which will result in placing positive results in the place of unprovable and often improbable hypotheses.

There are certain limitations which are inherent in, and common to, all historical sciences. Their objects must be clearly defined in space and in time. They all start where tradition, in one form or another, begins. It is true that inferences may be permitted as to what lies beyond this boundary line which divides the historic from the prehistoric. But these inferences must be confined to the period immediately preceding the beginnings of tradition. The farther they depart from it, the more shadowy, general, and unreal they become, because the data of time and space are wanting, and without them historical investigation becomes impossible.

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